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(7)

14 December 1962

MEMORANDUM FOR MR. McCONE

In accordance with your request through Mr. Scoville this memorandum is a summary of the Satellite Reconnaissance Program and its current status. A current schedule is attached.

The CORONA-MURAL 24" focal length stereo search system is operational. Thirteen of sixteen flights have returned material for exploitation with average resolution of ten to thirteen feet. A small percentage of the material has measured resolution down to seven feet and a portion of the material has resolution ranging up to twenty feet. The system also includes a 1.5 inch focal length framing camera and 65 mm stellar camera unit to enhance the use of the panoramic reconnaissance photography.

In May of 1963 the CORONA-J configuration should be available for test. The CORONA-J is identical with the CORONA-M system except that the vehicle is modified to have two complete recovery systems. The operational plan for this system is to operate for four days and then recover the first capsule. The vehicle may then be placed in an inactive mode and reactivated at any time up to about 20 days (depending on orbital decay parameters). After reactivation a three-day mission and subsequent recovery of the second capsule will complete the active life of the vehicle.

The CORONA-J is dependent on the thrust-assisted Thor-Agena configuration. However, in the event this booster is not immediately successful, a standard CORONA-M system can be flown in the same configuration as currently exists.

As of 11 December 1962, I issued termination instructions for the 722 system. This system was designed to obtain area coverage at eight to ten feet resolution with a 36" focal length panoramic stereo system. This action was predicated on recovery vehicle problems, and I am now considering the possibility of an experiment using a Thor-Agena vehicle and the proven recovery capsule system to obtain data on the performance of the payload and the increase in intelligence content inherent in the better resolution system.

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The LANYARD system is a 66" focal length panoramic system with optional stereo capability designed for reconnaissance of specific targets. This system is scheduled for first flight in February 1963. It is completely dependent on success of the thrust-assisted Thor-Agena vehicle. Recent dynamic resolution tests have obtained 80 to 85 lines/mm at low contrast which is equivalent to about five feet resolution which is the design goal.

The GAMBIT system is the only Atlas-Agena boosted system in the current program. The objective of this 77" focal length strip camera, which also has optional stereo coverage, is to obtain specific target coverage at 2-3 feet resolution. It is scheduled for first flight in June 1963. Dynamic resolution tests of the engineering model of the camera have shown 118 lines/mm which is above the specification requirement. The major development problems are associated with the control and stabilization of the vehicle. The desired resolution can be obtained only if vehicle motions are held to maximum values less than those currently obtained in other programs. A major portion of the solution to this problem is dependent on the establishment of an accurate vertical reference by means of horizon sensors and an inertial reference system. There are parallel competitive developments of the horizon sensor, which is the most critical element, and both sensors are now proceeding satisfactorily. The other problem is the accuracy required for pointing the camera at the target. The swath width at nadir is only 10.6 nautical miles and exact knowledge of target and vehicle location and precise controllability are necessary. I am considering a proposal to leave the satellite vehicle attached to the Agena during portions of early flights in order to check out critical elements of the system without complete dependence on proper operation of the new control system.

The ARGON geodetic and mapping system has had two successful tests. Further flights of this system are deferred until next year. I am now considering a proposal for a new geodetic and mapping system with greater capabilities.

Project 417 is a small weather satellite in support of the satellite photographic reconnaissance program. The first successful launch was accomplished 23 August 1962. As of 5 December, 5800 pictures had been received of which 70% were usable. This satellite will probably continue to provide useful information through mid-January 1963. The next vehicle is ready for launch when the payload now in orbit ceases to function.

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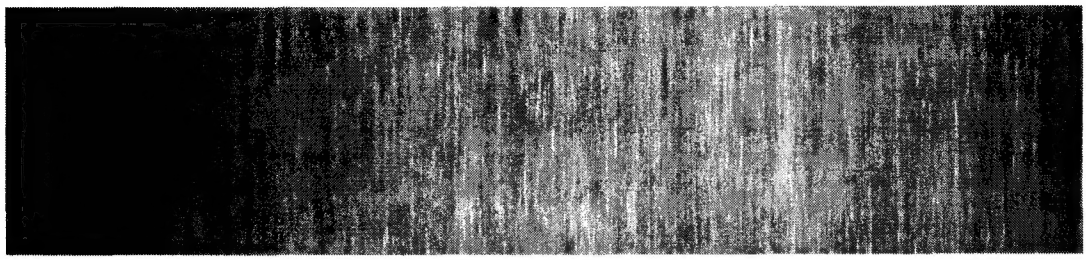
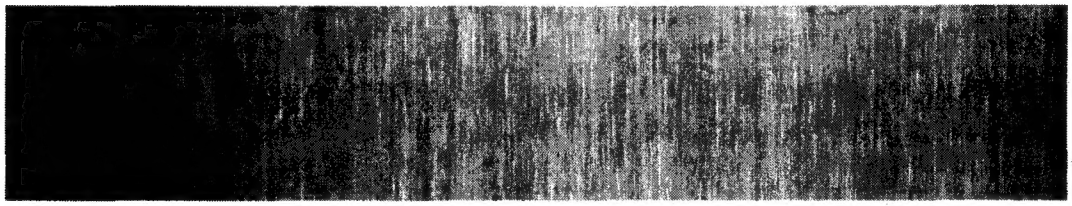
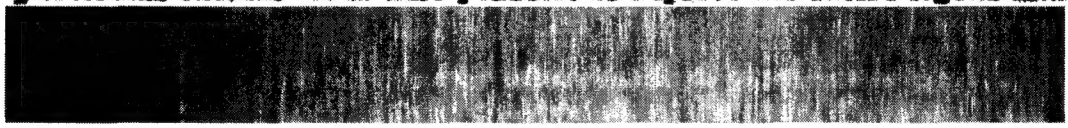


[redacted] The POPPY type payloads are real time signal repeaters in 28" diameter solar-powered spheres having a long life on orbit. Two POPPY payloads were orbited on 12 December but will not be exercised for several days.



There has been a major effort made to provide the maximum flexibility within the physical constraints of the overall system, and an important aspect of this effort has been to require an interchangeability of payloads that could be used on the Thor boosted systems. Currently there exists the possibility at R-35 days to interchange the CORONA, ARGON, LANYARD and CORONA-J payload subsystems. It is planned that there will be "on the shelf" payloads available so that the launch rate can be increased over the planned schedule in any particular month. It is also possible to replace the entire Agena and



In August of 1963 and every other month thereafter we have programmed a CORONA-J vehicle to be available which will not necessarily be flown in these months. The purpose is to provide a relatively quick-reaction capability which will allow reconnaissance flights to be executed rapidly in future emergency situations. Our launch pads will, however, restrain us from maintaining a sustained rate of more than three Thor-Agenas per month.

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We are conducting several research efforts looking toward extension of our capabilities in the future. Under the code word VALLEY we have recently initiated a program for design and test of the critical components of a camera system which would provide GAMBIT or better resolution in a panoramic camera, thus reducing the severity of the pointing problem inherent with long focal length strip type cameras. Project QUILL is research toward an experimental radar payload for bomb damage assessment. In addition to these two payload efforts we have a research study effort with the Martin-Marietta Company to develop basic design information for a maneuverable lifting re-entry vehicle to permit accurate land recovery of large payloads. I am also evaluating a proposal for a 150" focal length non-stereo strip type system, launched by a thrust-assisted Thor-Agena, which could provide an alternate approach to the resolution we are seeking in the GAMBIT project.

Signed

Atch
schedule

Joseph V. Charyk
Director
National Reconnaissance Office

cc: Mr. McNamara
Mr. Gilpatric

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# LAUNCH SCHEDULE

AS OF 12 Dec 62

## PHOTOGRAPHIC

| | | D | J | F | M | A | M | J | J | A | S | O | N | D | J | F | M | A | M | J | J | A | S | O | N | D | J | F | M | A | M | J | J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1963 | | | | | | | | | | | | | 1964 | | | | | | | | | | | | 1965 | | | | | | |
| CORONA "M" | 10-15' resolution general search | 1 | 1 | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| "J" | 10-15' resolution general search | | | | | | 1 | 1 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | | | | | | | | | |
| "L" | 5' resolution specific coverage | | | 1 | 1 | 1 | 1 | 1 | 1 | | 1 | 1 | | | | | | | | | | | | | | | | | | | | | |
| ARGON | Geodetic coverage 350' resolution | | | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 206 GAMBIT | High resolution 2-3' specific coverage | | | | | | | 1 | | 1 | 1 | 1 | 1 | 1 | | 1 | 1 | | 1 | 1 | 1 | 1 | 1 | 1 | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

## ELECTRONIC

| | | D | J | F | M | A | M | J | J | A | S | O | N | D | J | F | M | A | M | J | J | A | S | O | N | D | J | F | M | A | M | J | J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| POPPY | Long-life real time signal repeaters | 1 | | | | 1 | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | |

## WEATHER

| | | D | J | F | M | A | M | J | J | A | S | O | N | D | J | F | M | A | M | J | J | A | S | O | N | D | J | F | M | A | M | J | J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 417 (P-35) | Weather coverage of area of interest | | 1 | | | 1 | | | 1 | | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | |

[redacted]

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